Name: _____ Period _____ Date: _____

Major meltdown underway

Cable News Network

August, 2009 -- U.S. scientists monitoring shrinking glaciers in Washington and Alaska have reported that a major meltdown is under way.

A 50-year government study found that the world's glaciers are melting at a rapid and alarming rate. The ongoing study is the latest in a series of reports that found glaciers worldwide are melting faster than anyone had predicted they would just a few years ago.

It offers a clear indication of an accelerating climate change and warming earth, according to the authors.

Since 1959, the **U.S. Geological Survey**, which published the study, has been tracking the movements of the South Cascade glacier in Washington and the Wolverine and Gulkana glaciers in Alaska. The three glaciers are considered "benchmarks" for the conditions of thousands of other glaciers because they're in different climate zones and at various elevations.

"These changes are taking place in Washington State and **Alaska** in three different climate regimes," said Edward Josberger, the lead researcher on the study with the USGS Washington Water Science Center in Tacoma, Washington.

"So we feel it's definitely something going on, probably on a global scale, and of course, if you look at other such measurements around the world and put it all together, yes, glaciers are retreating and retreating rapidly."

The half-century record contains measurements of the amount of snow that has fallen on the glaciers each winter and on how much ice has melted off each summer. The data give scientists a sense of whether the glacier is getting more "healthy" or losing mass, Josberger said. They also indicate what's happening to mountain glaciers in other parts of the world, the scientist said. ""We feel it's definitely the signature of global change and **climate warming**."

The melt of glaciers is resulting in higher sea levels and affecting ecosystems and the rivers that emanate from these glaciers, Josberger said. "In terms of water supply available for people, Anchorage is fed by two glacially fed lakes. There are some very strong impacts that could happen."

The rate at which a glacier melts depends on its thickness and mass and, of course, on the temperature. Even small changes in temperature of only one to two degrees can have a significant impact on the environment, according the National Weather Service.

"We've been using this 50-year record to interpret the changes or the response of glaciers to climate change," Josberger said. "Basically, in the past 10, 15 or 20 years these three glaciers are wasting away. The melting has far exceeded the amount of snow that falls on them in the winter, so they're retreating far up valley. And this retreat is taking place all over the Alaska and the Pacific Northwest (including Mount Rainier)."

For example, Washington's South Cascade glacier has lost half its volume since 1960.

Glacier melt will likely continue and, as it does, sea levels around the world are expected to continue rising. And that could affect people in low-lying coastal communities, forcing them from their homes and further inland, experts say.

1) Which sentence best summarizes the selection? (Summarizing; WA GLE 2.1.7)
   - ❍ A. Since 1959, the U.S. Geological Survey has been tracking the South Cascade glacier.
   - ❍ B. The half-century record contains measurements of the amount of snowfall.
   - ❍ C. Glaciers worldwide are melting faster than anyone had predicted just a few years ago.
   - ❍ D. These changes are taking place in Washington State and Alaska.

2) What is the meaning of the phrase "benchmarks" in paragraph 4 of the selection? (Interpreting vocabulary; WA GLE 1.3.2)
   - ❍ A. Example for others
   - ❍ B. Reference point
   - ❍ C. Primary point
   - ❍ D. Exactly alike

3) Based on the selection, what did the researchers do to ensure their conclusions are valid? Include two details from the selection in your answer. (Making inferences; WA GLE 2.1.5)

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4) Based on information in the selection, what are two problems associated with glaciers melting rapidly? Include information from the selection in your answer. (Making cause-and-effect connections; WA GLE 2.3.1)

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Answer key:

1) C

2) B

3) Valid answers could include, but may vary:
They took measurements over a period of time
They took measurements in three different climate regimes
They took multiple readings
They took measurements at different times of the year

4) Valid answers could include, but may vary:
Sea levels will continue to rise
People in coastal communities could be forced them from their homes
Resulting in higher sea levels
Affecting ecosystems
Affecting rivers that start in these glaciers
Affect water supplies for people